



**Work Plan and Accomplishments Report  
FY21 FWS NFHAP Project Funding Cycle**

Fish Habitat Partnership: **Eastern Brook Trout Joint Venture**

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General Instructions

1. Complete Section 1 if applying for operating support funding, only.
2. Complete Sections 1, 2, and 3 if applying for both stable operational support and competitive, performance-based funds. See attachment to this template for additional guidance and definitions for selected performance criterion.
3. If you have questions about this template, please contact your Regional Coordinator.
4. Email one electronic copy of the completed report by 11:59 pm local time, **January 15<sup>th</sup> 2021** to your respective Regional Coordinator and the National Coordinator (listed below).
5. Incomplete reports will not be considered for funding. Information received after the submission deadline will not be considered.

**NFHAP Regional and National Coordinator List**

| <b>FWS<br/>Legacy<br/>Region</b> | <b>Coordinator</b> | <b>Phone</b>           | <b>E-mail</b>                                                              | <b>FHPs in Region</b>                                                                                                                                                                                                                          |
|----------------------------------|--------------------|------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                | John Netto         | 503-231-2270           | <a href="mailto:John_Netto@fws.gov">John_Netto@fws.gov</a>                 | <ul style="list-style-type: none"> <li>- Hawaii FHP</li> <li>- Pacific Marine and Estuarine Partnership</li> <li>- Pacific Lamprey FHP</li> </ul>                                                                                              |
| 2                                | Karin Eldridge     | 505-248-6471           | <a href="mailto:Karin_Eldridge@fws.gov">Karin_Eldridge@fws.gov</a>         | <ul style="list-style-type: none"> <li>- Desert FHP</li> <li>- Reservoir FHP</li> </ul>                                                                                                                                                        |
| 3                                | Jessica Hogrefe    | 612-713-5102           | <a href="mailto:Jessica_Hogrefe@fws.gov">Jessica_Hogrefe@fws.gov</a>       | <ul style="list-style-type: none"> <li>- Driftless Area Restoration Effort</li> <li>- Fishers and Farmers Partnership</li> <li>- Great Lakes Basin FHP</li> <li>- Midwest Glacial Lakes Partnership</li> <li>- Ohio River Basin FHP</li> </ul> |
| 4                                | Tripp Boltin       | 843-819-1229           | <a href="mailto:Walter_Boltin@fws.gov">Walter_Boltin@fws.gov</a>           | <ul style="list-style-type: none"> <li>- Southeast Aquatic Resources Partnership</li> </ul>                                                                                                                                                    |
| 5                                | Callie McMunigal   | 304-536-1361,<br>x7342 | <a href="mailto:Callie_Mcmunigal@fws.gov">Callie_Mcmunigal@fws.gov</a>     | <ul style="list-style-type: none"> <li>- Atlantic Coastal FHP</li> <li>- Eastern Brook Trout Joint Venture</li> </ul>                                                                                                                          |
| 6                                | Bill Rice          | 303-236-4219           | <a href="mailto:William_Rice@fws.gov">William_Rice@fws.gov</a>             | <ul style="list-style-type: none"> <li>- Great Plains FHP</li> <li>- Western Native Trout Initiative</li> </ul>                                                                                                                                |
| 7                                | Michael Daigneault | 907-786-3523           | <a href="mailto:Michael_Daigneault@fws.gov">Michael_Daigneault@fws.gov</a> | <ul style="list-style-type: none"> <li>- Kenai Peninsula FHP</li> <li>- Mat-Su Basin Salmon Habitat Partnership</li> <li>- Southwest Alaska Salmon Habitat Partnership</li> <li>- Southeast Alaska FHP</li> </ul>                              |
| 8                                | Lisa Heki          | 775-861-6354           | <a href="mailto:Lisa_G_Heki@fws.gov">Lisa_G_Heki@fws.gov</a>               | <ul style="list-style-type: none"> <li>- California Fish Passage Forum</li> </ul>                                                                                                                                                              |
| HQ                               | Michael Bailey     | 703-785-7126           | <a href="mailto:Michael_Bailey@fws.gov">Michael_Bailey@fws.gov</a>         | <ul style="list-style-type: none"> <li>• National Coordinator</li> </ul>                                                                                                                                                                       |

## **General Guidance for Completing Section 1. Justification for Stable Operating Support**

The intent of Section 1 is to ensure that FHPs receiving operating support are thriving, active organizations making concerted efforts to achieve fish habitat conservation goals and objectives established by both the FHP and National Fish Habitat Action Plan.

*Narrative responses* should provide an overview of all projects and activities supported by FWS funds and all other sources or in-kind contributions over the previous three federal fiscal years (FY 2017, 2018, and 2019 or October 1, 2016 through September 30, 2019) and anticipated projects and activities over the next three federal fiscal years (2021, 2022, and 2023 or October 1, 2020 through September 30, 2023).

*Project summaries* should not be an itemized list of individual projects. Project summaries should instead focus on the associated outputs and outcomes of the habitat conservation projects implemented by the FHP (e.g., *completed ten fish passage projects resulting in X number of miles reopened, link to strategic plan, objective addressed, outcomes, socioeconomic impacts, etc.*)

*Activity summaries* should focus on salient operational and programmatic activities (e.g. *update strategic plan, improved capacity of FHP, monitoring and assessments, outreach events, socioeconomic impacts, etc.*). Day-to-day FHP activities (e.g. the number of meetings or teleconferences an FHP representative participated in) are not pertinent to this performance report and should not be included in this summary.

Please make efforts to keep your justification in Section 1 concise. Do not exceed six pages.

***Additional, supplemental guidance for completing the Annual Work Plan and Accomplishments Report and example narratives can be found in the Appendix section of this document.***

**Section 1. Justification for Stable Operational Support** (maximum 6 pages)

Enter your responses in the space provided below.

*Eastern Brook Trout Joint Venture Projects and Activities*Projects (FY2017-FY2019)

The Eastern Brook Trout Joint Venture (EBTJV) had fourteen projects supported by FWS-NFHAP funds between FY2017 and FY2019; eleven of these projects entailed implementing on-the ground fish habitat conservation actions while three supported the EBTJV's operation and coordination activities. All of the on-the ground fish habitat conservation projects addressed at least one of the EBTJV's key conservation actions as 91% reconnected fragmented habitat, 82% enhanced recreational fishing for wild Brook Trout; 73% expanded Brook Trout habitat; 73% preserved Brook Trout genetic diversity; and, 45% minimized threats to Brook Trout. From a national perspective, the eleven on-the-ground fish habitat conservation projects addressed three of four National Fish Habitat Partnership national conservation strategies, including restoring hydrologic conditions for fish, reconnecting fragmented fish habitats, and restoring water quality. Collectively the eleven on-the-ground fish habitat conservation projects enhanced more than 16 stream miles of aquatic habitat and, removed 7 fish passage barriers that renewed access to 133 miles of stream, which includes thermal refugia, an essential factor in sustaining wild Brook Trout populations being distressed by the influences of climate change. The total cost of the eleven fish habitat conservation projects was \$2,559,767, which included \$392,751 in FWS-NFHAP funds and \$2,167,016 in partner contributions, resulting in a ratio of 5.5 partner dollars for each FWS-NFHAP dollar. The [socioeconomic benefit](#) resulting from these projects is estimated to be \$85.6 million dollars.

Activities (FY2017-FY2019)

In 2015, the EBTJV completed its second range-wide Brook Trout status assessment, conducted at the catchment scale, and used the assessment results to assist with refining the partnership's range-wide habitat goals and objectives as well as its conservation priorities, which was completed by December 2018 (see [Eastern Brook Trout Roadmap to Conservation](#)). A principal focus of these refinements is aimed at reducing aquatic habitat fragmentation in an effort to make wild Brook Trout populations more resilient to the impacts of climate change (increasing air temperatures and rainfall amounts).

The EBTJV continued its collaborative working relationship with the [Chesapeake Bay Program](#) (CBP) in an effort to address mutual landscape level priority conservation needs. The EBTJV's alliance with the CBP during this 3-year period entailed working with its Brook Trout Action Team to develop an indicator of success for achieving the CBP's [Brook Trout Management Strategy](#) and, to assist in the development and implementation of the Brook Trout Management Strategy's [annual work plans](#).

The EBTJV was successful in obtaining three Multi-State Conservation Grant Program grants during this time period, providing the partnership with \$29,210 in funding to support joint efforts undertaken with the Atlantic Coastal Fish Habitat Partnership (ACFHP) and the Southeast Aquatic Resources Partnership (SARP). The purposes of these collaborations were to conserve fish habitat from whitewater to bluewater. Over the three years (FY17-FY19) the emphasis of the relationship was directed towards

developing a process that identifies and prioritizes fish habitat conservation focus areas located in drainages that cross the geographic boundaries of the three Fish Habitat Partnerships. This effort led to selecting the Rivanna HUC 8 in Virginia as a priority focal area for jointly addressing fish habitat connectivity issues.

To promote the accomplishments being achieved in conserving wild Brook Trout, one hundred eighty-nine (189) wild Brook Trout conservation-related media stories were posted on the EBTJV's [Facebook page](#), which generated more than 141,000 views.

#### Anticipated Projects (FY2021-FY2023)

During the FY21-FY23 time frame, the EBTJV anticipates the focus of its Brook Trout conservation projects will be geared towards achieving the partnership's revised Range-wide Habitat Goals and Objectives (Table I). Additionally, projects that also deliver key conservation actions as components of their outcomes will be given a higher priority as our partnership believes these actions represent the strategic elements needed to achieve success in conserving wild Brook Trout (Table II). The EBTJV gives prospective Brook Trout conservation projects that address its range-wide habitat goals and objectives, key conservation actions and occur within priority catchments and patches, higher ratings in our partnership's [Project Review](#) process. The EBTJV also anticipates utilizing the \$85,000 available from the partnership's FY21 stable funding allocation to support its base operational functions.

Table I. EBTJV Range-Wide Habitat Goals and Objectives, 2018-2022

| GOAL                                                                                                            | OBJECTIVE                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Increase the average size (km <sup>2</sup> ) of wild Brook Trout patches, which is currently 19 km <sup>2</sup> | Increase the size (km <sup>2</sup> ) of 30 wild Brook Trout patches by the year 2022.                                                                                                                                                                                                                             |
| Restore wild Brook Trout to catchments where they were extirpated                                               | Establish wild Brook Trout in 15 extirpated catchments by the year 2022.                                                                                                                                                                                                                                          |
| Maintain the current number of wild Brook Trout patches (i.e. no net loss)                                      | <ul style="list-style-type: none"> <li>-Retain at least 6,022 allopatric wild Brook Trout patches (1.1) across the EBTJV geographic range by the year 2022.</li> <li>-Retain at least 3,838 sympatric wild Brook Trout patches (1.2, 1.3, and 1.4) across the EBTJV geographic range by the year 2022.</li> </ul> |
| Increase connectivity within and among wild Brook Trout catchments                                              | Complete Aquatic Organism Passage projects within 45 wild Brook Trout catchments by 2022.                                                                                                                                                                                                                         |

Table II. EBTJV Key Conservation Actions

|                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------|
| Increase recreational fishing opportunities for wild Brook Trout                                                                          |
| Conserve and/or increase habitats that support robust wild Brook Trout populations                                                        |
| Restore and reconnect suitable habitats adjacent to robust wild Brook Trout populations                                                   |
| Conserve genetic diversity of wild Brook Trout populations                                                                                |
| Conserve unique wild Brook Trout life history strategies (e.g., lacustrine populations, large river populations, and coastal populations) |
| Minimize threats to wild Brook Trout populations (e.g., degraded water quality, invasive species, altered hydrologic regimes)             |

Anticipated Activities (FY2021-FY2023)

The EBTJV will continue working towards achieving its range-wide habitat goals and objectives. Our partnership will continue with the development of a process that results in allowing our web-based wild Brook Trout-related catchment database to be updated on-line by the States and we intend to initiate a process that converts the EBTJV's catchment delineation layer from HD+ Version 2 to HD+ High Resolution when development of this new data layer is complete. Our partnership will also focus on determining a method for identifying the locations of groundwater discharges that provide essential thermal refugia for Brook Trout, an essential need as this will lessen the negative impacts of climate change. The EBTJV intends to complete an assessment of the strengths and weaknesses of the many Brook Trout-related decision-support tools to provide users with a better understanding of how and when to use these tools. Our partnership will continue to liaise and collaborate with the National Fish Habitat Partnership, neighboring Fish Habitat Partnerships and other conservation entities to ensure that strategic conservation actions among this community are synchronized. Additionally, the EBTJV will continue to solicit and rank fish habitat conservation projects that address priority wild Brook Trout conservation needs; coordinate and compile information on wild Brook Trout conservation activities and improvements in wild Brook Trout habitat condition for use in measuring progress towards conserving wild Brook Trout; and, promote the accomplishments being achieved in conserving wild Brook Trout to targeted audiences.

## **General Guidance for Completing Section 2. Accomplishments Report**

The purpose of this section is to describe, in detail, the activities of the FHP over the previous three federal fiscal years and how stated goals and objectives were met using FWS NFHAP project funds and other funding and in-kind resources.

For the purposes of completing this report, “NFHAP project funds” means FWS funds allocated under the NFHAP methodology that were used for fish habitat conservation projects. Project funds includes competitive, performance-based funding, as well as any stable operational support funding an FHP chooses to use for fish habitat conservation projects. FHP stable operational support funding used for general operations (coordination, travel, etc.) should not be included in Section 2 and Section 3.

Responses for criterion #4, project completion, should include information for projects that *received FWS NFHAP project funds over the previous five fiscal years* (FY15 – FY19 or October 1, 2014 through September 30, 2019). Projects funded from FY15 – FY19 will be evaluated for project completion between the federal fiscal years FY15 – FY20. Responses for all other criteria in this section will adhere to the three federal fiscal year time frame (FY17 – FY19).

Percentages (criteria # 2, 3, 4, 5, 7, and 8) and the leveraging ratio in criterion # 6 should be calculated to the nearest hundredth.

Supplemental guidance for selected performance criteria (criteria # 1, 4, and 6) is presented in the appendix to this document.

Please list your projects in chronological order by year for each criterion. To avoid confusion and provide clarity for reviewers, please keep your project lists in the same order for all criterion.

When responding to the requirements in this Section, FHPs should complete the self-assessment checklist, with narrative evidence justifying the performance level selected for each criterion.

## Section 2. Accomplishments (Federal FY 2017 through 2019)

1. Meet the basic FHP requirements established by the National Fish Habitat Board for strategic planning and assessments

*Over the previous three fiscal years, how has the FHP met basic requirements for scientific planning and habitat assessments? (Choose one and provide explanation)*

- ☐ FHP has filled data gaps and refined habitat assessments, including climate change considerations, for incorporation into the Science and Data Committee's national assessment (Level 3): During Federal FY 2017 through 2019, the EBTJV filled data gaps using its refined range-wide assessment of Brook Trout at the catchment scale, including incorporating climate change considerations into its suite of Brook Trout conservation decision-support tools. The EBTJV continually shares its assessment findings with the NFHP Science and Data Committee.

*Narrative support: Briefly summarize any assessments and efforts to identify and fill data gaps. Describe how assessment results have been incorporated into strategic plans priorities and project selection process. Provide a link to your strategic plan and/or assessments as appropriate.*

- Coordinate and compile scientific assessment(s) information on priority fish habitats within the FHP's boundaries.
- Incorporate existing assessments of habitat conditions and threats as needed into the FHP strategic plan.
- Information gaps in scientific information and knowledge have been filled in order to strategically identify and prioritize fish habitat conservation projects in FHP boundaries.
- Identify how habitat assessments projects will be solicited and selected within FHP priorities.

The EBTJV's efforts to coordinate and compile scientific assessments on priority fish habitats within our FHP's geographic boundaries included completing our partnership's second range-wide assessment of Brook Trout, which was initiated as a result of resource managers identifying needs to have the status of Brook Trout determined at a finer scale (catchment vs. subwatershed) as well as integrating the presence of exotic trout species (rainbow trout and brown trout); and, providing support to Trout Unlimited as it developed its [Eastern Brook Trout Conservation Portfolio](#), which consists of three conservation planning products that interprets spatial data related to Brook Trout population patterns, their habitats, and threats to those habitats.

The results from the EBTJV's range-wide [catchment assessment](#) were used to refine the EBTJV's range-wide habitat goals and objectives and to modify the partnership's key Brook Trout conservation actions (see [Eastern Brook Trout Roadmap to Conservation](#)). These refinements and modifications were also used to revise our [Project Review Criteria](#), the primary mechanism the EBTJV uses to solicit and prioritize its fish habitat conservation projects. TU's Brook Trout Conservation Portfolio is also used by EBTJV partners to aid in strategically identifying and prioritizing fish habitat conservation projects within the eastern range of Brook Trout.



- Incorporate new data on threats, including climate change, into the habitat assessment and project priorities.

The EBTJV integrated the presence of exotic trout species into its [assessment database](#), by creating catchment and patch classification data layers so that this leading threat to Brook Trout populations could be appropriately addressed by our partners when developing their conservation actions. Climate change is also a top threat to Brook Trout sustainability and so the EBTJV supported the development of the [Riparian Restoration Decision Support Tool](#), which is an innovative riparian planting and restoration decision support tool that allows managers and decision-makers to rapidly identify and prioritize areas along the banks of rivers, streams, and lakes for restoration, making these ecosystems more resilient to disturbance and future changes in climate.

One of conservation planning products in TU's Eastern Brook Trout Conservation Portfolio is the "Range-wide Habitat Integrity and Future Security Assessment" that uses broad-scale GIS information to characterize the EBTJV's Brook Trout patches and adjacent unoccupied HUC12 subwatersheds based on the current pattern of habitat alteration and anticipated threats. Factors related to agricultural land use, riparian vegetation, road densities, stream crossings, acid deposition, and stream temperature are summarized to assign a percentile score to each patch or subwatershed. This analysis provides EBTJV partners with additional context during the development of conservation strategies for each Brook Trout patch. The subwatershed summaries offers a framework for interpreting their suitability for the expansion or reintroduction of Brook Trout.

The EBTJV is also addressing the threat posed by climate change by including a range-wide habitat goal that focuses on reducing Brook Trout habitat fragmentation by eliminating fish passage barriers so Brook Trout have ready access to thermal refugia. This focus is highlighted by the fact that 91% of the EBTJV's fish habitat conservation projects receiving FWS-NFHAP funds from FY17 through FY19 reconnected fragmented habitat, providing Brook Trout renewed access to 133 miles of stream.

- Complete FHP specific plan to fill data gaps and to refine and complete fish habitat assessments that are necessary to in FHP boundaries.
- Prioritize information gaps and approach to fill science and data gaps necessary to refine, complete, and update habitat condition assessments that are necessary to strategically identify and prioritize fish habitat conservation projects in FHP boundaries.

To fill science and data gaps, the EBTJV has identified the need to: create a web application that would allow credentialed users to modify and update EBTJV catchment classifications for presence of salmonid species on an annual basis (this effort is currently underway); develop a new assessment data layer that would account for trout population abundance, in addition to presence/absence data, for those catchments where this data is available; gain a better understanding of Brook Trout genetics across its eastern range in an effort to determine the level of impact hatchery-origin Brook Trout are having on wild Brook Trout genetics, how best to select donor populations for restoring wild Brook Trout in waters where they have been

extirpated, whether spatial isolation and restricted gene flow influence phenotypic variation within and among wild Brook Trout populations, whether genetic rescue is a tool that can provide population resilience, and in what way genetics can be used to monitor Brook Trout population trends and their responses to conservation actions taken; and, incorporate groundwater data in its efforts to better identify key areas that can provide thermal refugia for Brook Trout, particularly in light of future climate scenarios that predict rises in water temperatures, as knowing where these thermal refugia exist are essential to establishing more effective Brook Trout conservation priorities and requisite management decisions.

- Proactively share scientific information and knowledge from assessments in a compatible format with the National Science and Data Team for integration into the national assessment and other national needs.

The EBTJV has and will continue to share its assessment data, modeling outputs, and decision-support tools with NFHP's Science and Data Committee (see [Brook Trout Conservation Decision Support Tools](#)).

2. Execute projects that benefit FHP priority species or priority areas (**Federal FY 2017 through FY 2019**)

*What percentage of **all projects initiated** in the past three fiscal years were focused on FHP defined priority species or priority areas? (Choose one)*

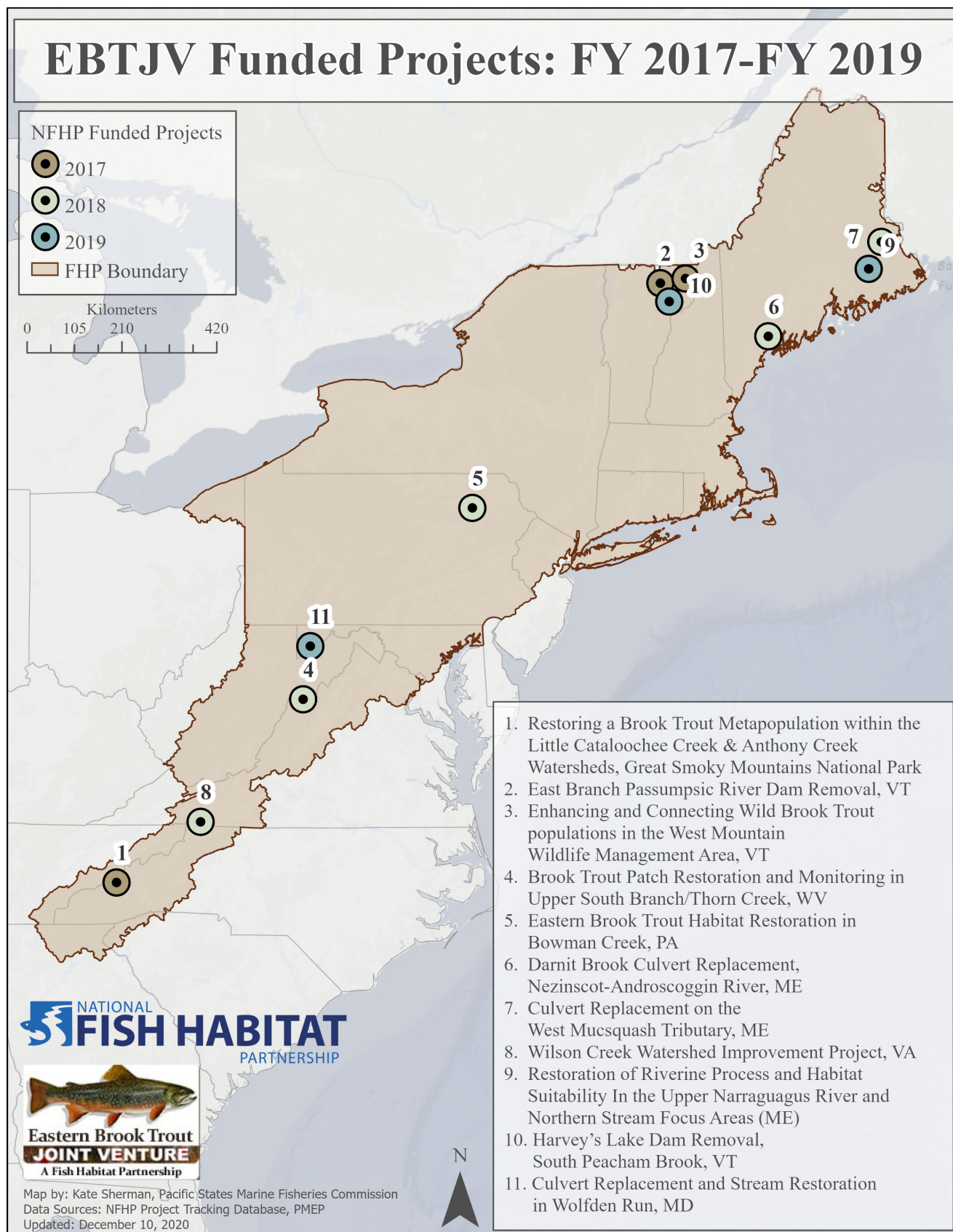
- ☐ At least 95% (Level 3): The percentage of all projects initiated in Federal FY 2017 - FY 2019 that were focused on FHP defined priority species or priority areas is 100%. A map of the Projects is appended at the end of this document.

Complete table adding rows for additional projects as needed. Attach map with project locations and priority areas identified.

| Project Title                                                                                                                                              | FHP Priority Species | FHP Priority Area                                                  | Brief project description<br>(max. 250 characters)                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restoring a Brook Trout Metapopulation within the Little Cataloochee Creek & Anthony Creek Watersheds, Great Smoky Mountains National Park, TN & NC (FY17) | Brook Trout          | Subwatershed Priority Scores = 0.21 & 0.62 (low rank category)     | This project restored Brook Trout into 2.64 km of Little Cataloochee Creek and 2.8 km of Anthony Creek within its native range in Great Smoky Mountains National Park (GRSM) as identified in the GRSM Fishery Management Plan.                         |
| East Branch Passumpsic River Dam Removal, VT (FY17)                                                                                                        | Brook Trout          | Subwatershed Priority Scores = 1.41 & 1.42 (highest rank category) | This project removed a deteriorating dam, which improved natural flow regimes, free-flowing river conditions, water quality and temperature, sediment release and transport, and connectivity resulting in the restoration of Aquatic Organism Passage. |
| Enhancing and Connecting Wild Brook Trout populations in the West Mountain Wildlife Management Area, VT (FY17)                                             | Brook Trout          | Subwatershed Priority Score = 1.62 (highest rank category)         | This Project replaced one impassable culvert with a bridge, removed one culvert, and improved 1.25 miles of Brook Trout spawning and juvenile rearing habitat.                                                                                          |
| Brook Trout Patch Restoration and Monitoring in Upper South Branch/Thorn Creek, WV (FY18)                                                                  | Brook Trout          | Wild Brook Trout Catchment Feature ID # 8423048                    | This Project restores habitat to a degraded three-mile section of Thorn Creek in support of strengthening the Thorn Creek Brook Trout Patch and expanding that patch into the South Branch of the Potomac.                                              |

|                                                                                                                                   |             |                                                                                                          |                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eastern Brook Trout Habitat Restoration in Bowman Creek, PA (FY18)                                                                | Brook Trout | Wild Brook Trout Catchment Feature ID # 4201090                                                          | This Project restores, improves and increases connectivity of wild Brook Trout through riparian restoration and pH improvements to the former Mountain Springs Lake bottom in the South Branch Bowman Creek headwater system.                                |
| Darnit Brook Culvert Replacement, Nezinscot-Androscoggin River, ME (FY18)                                                         | Brook Trout | Wild Brook Trout Catchment Feature ID # 6711875                                                          | This Project replaces an undersized pipe arch culvert at the Shedd Hollow Road crossing of Darnit Brook, which creates a barrier to Brook Trout passage, with an open bottom arch structure sized 1.2x times bankfull width.                                 |
| Culvert Replacement on the West Musquash Tributary, ME (FY18)                                                                     | Brook Trout | Wild Brook Trout Catchment Feature ID # 5195840                                                          | This Project replaces an undersized and failing stream crossing on the West Musquash Tributary.                                                                                                                                                              |
| Wilson Creek Watershed Improvement Project, VA (FY18)                                                                             | Brook Trout | Wild Brook Trout Catchment Feature ID # 6889092                                                          | This Project protects the headwaters of Wilson Creek and promotes spruce restoration by fencing permitted long-horn cattle, wild ponies, and horse trail users out of the high elevation bogs and seeps, stabilizing streambanks and reducing trail erosion. |
| Restoration of Riverine Process and Habitat Suitability in the Upper Narraguagus River and Northern Stream Focus Areas, ME (FY19) | Brook Trout | Wild Brook Trout Catchment Feature ID #s 2679432, 2679304, 2679306, 2679454, 2677520, 2674148, & 2677476 | This Project increases in-stream habitat complexity and suitability and restores river-riparian interactions by adding large wood and creating log jams in high priority Brook Trout watersheds. It also removes remnant log-drive dams.                     |
| Harvey's Lake Dam Removal, South Peacham Brook, VT (FY19)                                                                         | Brook Trout | Wild Brook Trout Catchment Feature ID #s 4573905 & 4573747                                               | This Project removes a dam in the Stevens River watershed in Barnet, VT and improves water quality by addressing nonpoint sources of pollution. Removal of the dam opens 5 miles of cold-water habitat to wild Brook Trout.                                  |

|                                                                      |             |                                         |                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------|-------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Culvert Replacement and Stream Restoration in Wolfden Run, MD (FY19) | Brook Trout | Wild Brook Trout Catchment Feature ID # | This Project increases connectivity within and among wild Brook Trout catchments by removing fish passage barriers and improving habitat conditions. The Project reconnects 2.76 miles of stream corridor that provides Brook Trout access to spawning habitat. |
|----------------------------------------------------------------------|-------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



3. Execute projects that benefit FWS priority species / trust resources **(Federal FY 2017 through FY 2019)**

*What percentage of **all projects initiated** in the past three fiscal years addressed habitat issues for FWS priority or trust resources? (Choose one)*

- ☐ 75% (Level 3): The percentage of all projects initiated in Federal FY 2016 - FY 2018 that addressed habitat issues for FWS priority or trust resources is 100%.

Complete table adding rows for additional projects as needed.

| Project Title                                                                                                                                              | FWS Region | State    | Primary Species or Resources Benefitted | FWS Priority or Trust Resources (if neither, enter N/A) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|-----------------------------------------|---------------------------------------------------------|
| Restoring a Brook Trout Metapopulation within the Little Cataloochee Creek & Anthony Creek Watersheds, Great Smoky Mountains National Park, TN & NC (FY17) | 4          | NC<br>TN | Brook Trout                             | Brook Trout                                             |
| East Branch Passumpsic River Dam Removal, VT (FY17)                                                                                                        | 5          | VT       | Brook Trout                             | Brook Trout                                             |
| Enhancing and Connecting Wild Brook Trout populations in the West Mountain Wildlife Management Area, VT (FY17)                                             | 5          | VT       | Brook Trout                             | Brook Trout                                             |
| Brook Trout Patch Restoration and Monitoring in Upper South Branch/Thorn Creek, WV (FY18)                                                                  | 5          | WV       | Brook Trout                             | Brook Trout                                             |
| Eastern Brook Trout Habitat Restoration in Bowman Creek, PA (FY18)                                                                                         | 5          | PA       | Brook Trout                             | Brook Trout                                             |
| Darnit Brook Culvert Replacement, Nezinscot-Androscoggin River, ME (FY18)                                                                                  | 5          | ME       | Brook Trout                             | Brook Trout                                             |
| Culvert Replacement on the West Musquash Tributary, ME (FY18)                                                                                              | 5          | ME       | Brook Trout                             | Brook Trout                                             |
| Wilson Creek Watershed Improvement Project, VA (FY18)                                                                                                      | 5          | VA       | Brook Trout                             | Brook Trout                                             |
| Restoration of Riverine Process and Habitat Suitability in the Upper Narraguagus River and Northern Stream Focus Areas, ME (FY19)                          | 5          | ME       | Brook Trout                             | Brook Trout                                             |
| Harvey's Lake Dam Removal, South Peacham Brook, VT (FY19)                                                                                                  | 5          | VT       | Brook Trout                             | Brook Trout                                             |
| Culvert Replacement and Stream Restoration in Wolfden Run, MD (FY19)                                                                                       | 5          | MD       | Brook Trout                             | Brook Trout                                             |

#### 4. Project Completion and Success

*What percentage of projects funded by FWS NFHAP dollars, in whole or in part, during the prior five years have been completed consistent with the project design? (Choose one) See the calculation below for further guidance on responding to this criterion.*

- ☐ At least 80% (Level 3): 87.5% (14/16) of projects funded by FWS NFHAP dollars, in whole or in part, during the prior five years have been completed consistent with the project design.

Complete table adding rows for additional projects as needed. **All projects that received federal FY 2015 through 2019 FWS NHFAP project funds should be listed in the table below. Those projects will be scored for completion between FY15 – FY20.** In the Completion Date column, enter the date that the project was completed (use the following date format, mm/yyyy). Month and year must be specified in order to determine project completion date. For projects that are on-going or incomplete, enter N/A.

In FY 21, for example, the formula for this calculation is as follows:

$$\frac{\text{Of projects funded in FY15-FY19, number of projects completed by end of FY20}}{\text{Projects funded FY15-FY19}}$$

| Project Title                                                                                                                                              | Accomplishments #                       | Completion Date | Project completed according to design? (Enter Yes or No. If no, provide an explanation. Max 250 characters) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------|
| Nash Stream Restoration & Columbia Road Culverts, Odell, Coos County, NH (FY15)                                                                            | 53340-A-084                             | 08/2016         | Yes                                                                                                         |
| Upper Shavers Fork Instream and Riparian Habitat Restoration, Randolph County, WV (FY15)                                                                   | 53374-A-058                             | 07/2018         | Yes                                                                                                         |
| Sparta Glen Brook Restoration, NJ (FY16)                                                                                                                   | 52232-A-027                             | 10/2016         | Yes                                                                                                         |
| Great Pond Tributary Culvert Replacement, Little Cards Brook, Franklin, ME (FY16)                                                                          | 53371-A-213                             | 08/2017         | Yes                                                                                                         |
| Watershed Connectivity Project, Beebe River Watershed, Campton and Sandwich, NH (FY16)                                                                     | 53340-A-089, A-098, A-099, A-100, A-101 | 12/2017         | Yes                                                                                                         |
| Restoring a Brook Trout Metapopulation within the Little Cataloochee Creek & Anthony Creek Watersheds, Great Smoky Mountains National Park, TN & NC (FY17) | 42216-2016-304                          | 08/2018         | Yes                                                                                                         |
| East Branch Passumpsic River Dam Removal, VT (FY17)                                                                                                        | 53330-A-144                             | 11/2017         | Yes                                                                                                         |



|                                                                                                                                   |                    |         |     |
|-----------------------------------------------------------------------------------------------------------------------------------|--------------------|---------|-----|
| Enhancing and Connecting Wild Brook Trout populations in the West Mountain Wildlife Management Area, VT (FY17)                    | 53330-A-147, A-148 | 09/2018 | Yes |
| Brook Trout Patch Restoration and Monitoring in Upper South Branch/Thorn Creek, WV (FY18)                                         | 21496461           | 09/2020 | Yes |
| Eastern Brook Trout Habitat Restoration in Bowman Creek, PA (FY18)                                                                | 44926435           | 08/2019 | Yes |
| Darnit Brook Culvert Replacement, Nezinscot-Androscoggin River, ME (FY18)                                                         | 28881821           | 09/2019 | Yes |
| Culvert Replacement on the West Musquash Tributary, ME (FY18)                                                                     | 874251933          | 07/2019 | Yes |
| Wilson Creek Watershed Improvement Project, VA (FY18)                                                                             | 21496478           | 08/2019 | Yes |
| Restoration of Riverine Process and Habitat Suitability in the Upper Narraguagus River and Northern Stream Focus Areas, ME (FY19) | NA                 | NA      | NA  |
| Harvey's Lake Dam Removal, South Peacham Brook, VT (FY19)                                                                         | NA                 | NA      | NA  |
| Culvert Replacement and Stream Restoration in Wolfden Run, MD (FY19)                                                              | 866350965          | 09/2020 | Yes |

## 5. Monitoring and Evaluation (Federal FY 2017 through 2019)

*What percentage of all projects initiated in the past three fiscal years included a monitoring and evaluation plan? (Choose one)*

- ☐ 90% (Level 3): The percentage of all projects initiated in Federal FY 2017 – FY 2019 that included a monitoring and evaluation plan is 100%.

Complete table adding rows for additional projects as needed.

| Project Name                                                                                                                                               | Brief Monitoring & Evaluation Plan Description ( <u>max. 250 characters</u> )                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restoring a Brook Trout Metapopulation within the Little Cataloochee Creek & Anthony Creek Watersheds, Great Smoky Mountains National Park, TN & NC (FY17) | Prior to treatment depletion surveys were conducted throughout the treatment area as well as at a downstream control area of Little Cataloochee Creek. When the Project has been completed, monitoring sites will be visited annually for a minimum of three years.                             |
| East Branch Passumpsic River Dam Removal, VT (FY17)                                                                                                        | Post dam removal monitoring includes site visits and data collection (including electrofishing) by a technical team.                                                                                                                                                                            |
| Enhancing and Connecting Wild Brook Trout populations in the West Mountain Wildlife Management Area, VT (FY17)                                             | Electrofishing surveys will take place and annual monitoring will be conducted through site visits and photo surveys.                                                                                                                                                                           |
| Brook Trout Patch Restoration and Monitoring in Upper South Branch/Thorn Creek, WV (FY18)                                                                  | Fishery, benthic and habitat condition surveys will occur before and immediately after the implementation of the Project, again at 6 months and then annually for three years. Genetics and radio telemetry surveys will be conducted to determine Brook Trout expansion into the South Branch. |
| Eastern Brook Trout Habitat Restoration in Bowman Creek, PA (FY18)                                                                                         | Water temperatures and pH will be monitored after Project completion along with periodic fish and benthic surveys.                                                                                                                                                                              |
| Darnit Brook Culvert Replacement, Nezinscot-Androscoggin River, ME (FY18)                                                                                  | Monitoring consists of delineating a postconstruction longitudinal profile of the stream.                                                                                                                                                                                                       |
| Culvert Replacement on the West Musquash Tributary, ME (FY18)                                                                                              | Brook Trout presence above the culvert will be monitored after the barrier culvert is replaced with an open bottom structure.                                                                                                                                                                   |
| Wilson Creek Watershed Improvement Project, VA (FY18)                                                                                                      | Red spruce restoration and other riparian and wetland vegetation will be monitored. Trail sustainability will also continue to be evaluated after the project. Water quality sites and electrofishing surveys will be utilized for longer term monitoring of the watershed.                     |
| Restoration of Riverine Process and Habitat Suitability in the Upper Narraguagus River and Northern Stream Focus Areas, ME (FY19)                          | Project evaluation includes assessing: the geomorphic changes due to wood additions using an iPad-based application; fish population response to wood additions via electrofishing methods; and, water temperature comparisons pre- and post-treatment.                                         |
| Harvey's Lake Dam Removal, South Peacham Brook, VT (FY19)                                                                                                  | Post dam removal entails site visits and data collection via electrofishing as required by State and federal permit conditions.                                                                                                                                                                 |
| Culvert Replacement and Stream Restoration in Wolfden Run, MD (FY19)                                                                                       | Post-monitoring of Project outcomes consists of determining Brook Trout presence and density above and below the removed culverts using the State of Maryland standard fish assessment procedures.                                                                                              |

## 6. Leveraging of FWS Project Funds (Federal FY 2017 through 2019)

*Over a three-year period, the FHP leveraged FWS NFHAP project funding by a ratio of (Choose one). See attachment for further guidance on responding to this criterion:*

- ☐ At least 3:1 (Level 3): From Federal FY 2017 - 2019 the FHP leveraged FWS NFHAP project funding by a ratio of 5.16:1.

Complete table adding rows for additional projects as needed.

| Project Name                                                                                                                                               | FWS NFHAP Project Funds | Non-FWS Contributions | Other FWS Contributions | Total Project Costs | Funding Partners                                                                                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------|-------------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Restoring a Brook Trout Metapopulation within the Little Cataloochee Creek & Anthony Creek Watersheds, Great Smoky Mountains National Park, TN & NC (FY17) | \$37,642                | \$196,470             | \$0                     | \$234,112           | US EPA<br>NPS-GSM NP<br>TU-Little River Ch.<br>Friends of Smokies<br>GSM Association<br>NCWRC<br>TU-NC Chapters<br>TU-TN State Council<br>TU-NC State Council |
| East Branch Passumpsic River Dam Removal, VT (FY17)                                                                                                        | \$25,000                | \$252,450             | \$60,000                | \$337,450           | VTDFW<br>VTDEC<br>NH Charitable Found.                                                                                                                        |
| Enhancing and Connecting Wild Brook Trout populations in the West Mountain Wildlife Management Area, VT (FY17)                                             | \$50,000                | \$93,000              | \$15,600                | \$158,600           | NFWF<br>VTDFW<br>Upper CT River MEF<br>TU-VT Chapters                                                                                                         |
| Brook Trout Patch Restoration and Monitoring in Upper South Branch/Thorn Creek, WV (FY18)                                                                  | \$43,000                | \$217,250             | \$10,000                | \$270,250           | TU<br>WVDNR<br>USFWS-Partners Program<br>Private Landowners                                                                                                   |
| Eastern Brook Trout Habitat Restoration in Bowman Creek, PA (FY18)                                                                                         | \$9,059                 | \$10,120              | \$0                     | \$19,179            | Luzerne Conservation District<br>TU-Stanley Cooper Chapter<br>Keystone Creek Walkers                                                                          |
| Darnit Brook Culvert Replacement, Nezinscot-Androscoggin River, ME (FY18)                                                                                  | \$50,000                | \$155,189             | \$5,000                 | \$210,189           | Androscoggin River Watershed Council<br>MEDEP<br>Town of Buckfield, ME<br>USFWS-MEFRO<br>MEDIFW<br>Androscoggin Valley Council of Governments                 |

|                                                                                                                                   |          |           |         |           |                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------|----------|-----------|---------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Culvert Replacement on the West Musquash Tributary, ME (FY18)                                                                     | \$19,500 | \$19,500  | \$5,000 | \$44,000  | Downeast Lakes Land Trust<br>USFWS-MEFRO<br>Project SHARE<br>MEDIFW<br>Grand Lake Stream<br>ATV Club                                                                                                                                                                                                                                               |
| Wilson Creek Watershed Improvement Project, VA (FY18)                                                                             | \$50,000 | \$70,000  | \$0     | \$120,000 | USDA FS-George Washington and Jefferson NF<br>VADGIF<br>Grayson Highlands State Park<br>Emory and Henry College<br>TU-National<br>Appalachian Trail Conservancy<br>Mount Rogers<br>Appalachian Trail Club<br>TNC<br>Southern Highlands Reserve<br>Blue Ridge Discovery Center                                                                      |
| Restoration of Riverine Process and Habitat Suitability in the Upper Narraguagus River and Northern Stream Focus Areas, ME (FY19) | \$38,000 | \$116,537 | \$1,200 | \$155,737 | Project SHARE<br>Maine DMR<br>Maine Forest Service<br>Maine DIFW<br>Maine DEP<br>Maine DEC<br>USFWS<br>Downeast Lakes Land Trust<br>Maine Coast Heritage Trust<br>Washington Academy<br>University of Maine<br>Fly Fishing in Maine<br>Eastern Maine Conservation Initiative<br>American Forestry Management<br>Landvest<br>Wagner Land Management |

|                                                                            |                  |                    |                  |                    |                                                                                                                          |
|----------------------------------------------------------------------------|------------------|--------------------|------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------|
| Harvey's Lake Dam Removal,<br>South Peacham Brook, VT (FY19)               | \$50,000         | \$761,750          | \$50,000         | \$861,750          | Connecticut River<br>Conservancy<br>VTDFW<br>VTDEC<br>USFWS<br>NFWF<br>Town of Barnet, VT<br>NH Charitable<br>Foundation |
| Culvert Replacement and Stream<br>Restoration in Wolfden Run, MD<br>(FY19) | \$20,550         | \$131,000          | \$25,000         | \$176,550          | Trout Unlimited<br>USFWS<br>MDDNR<br>Western Maryland<br>Resource<br>Conservation and<br>Development Council             |
| <b>Total</b>                                                               | <b>\$392,251</b> | <b>\$2,023,266</b> | <b>\$171,800</b> | <b>\$2,587,817</b> |                                                                                                                          |

**Section 3: Work Plan (1-Year Planning Horizon)**

Complete table adding rows for additional projects as needed. This table should include all proposed projects for which you are seeking FY21 FWS NFHAP project funds.

**Proposed Projects for FY21 FWS NFHAP Project Funding**

| <b>FWS Legacy Region</b> | <b>State</b> | <b>FIS #</b> | <b>Rank</b> | <b>NFHAP Project Funds</b> | <b>Partner Funds</b> | <b>Total Cost</b> | <b>NFHAP Conservation Strategy</b>                                                                               |
|--------------------------|--------------|--------------|-------------|----------------------------|----------------------|-------------------|------------------------------------------------------------------------------------------------------------------|
| 4                        | TN           | 1411067964   | 1           | \$50,000                   | \$226,794            | \$276,794         | Restore hydrologic conditions for fish.<br><br>Reconnect fragmented fish habitats.                               |
| 4                        | NC           | 1991688723   | 2           | \$50,000                   | \$142,713            | \$192,713         | Reconnect fragmented fish habitats.                                                                              |
| 5                        | ME           | 1587568420   | 3           | \$50,000                   | \$127,047            | \$177,047         | Restore hydrologic conditions for fish.<br><br>Reconnect fragmented fish habitats.<br><br>Restore water quality. |
| 5                        | WV           | Unknown      | 4           | \$50,000                   | \$136,650            | \$186,650         | Restore hydrologic conditions for fish.<br><br>Reconnect fragmented fish habitats.                               |
| 5                        | VT           | 2003710183   | 5           | \$41,560                   | \$71,540             | \$113,100         | Reconnect fragmented fish habitats.<br><br>Restore water quality.                                                |
| 5                        | VT           | 1758654724   | 6           | \$50,000                   | \$139,470            | \$189,470         | Reconnect fragmented fish habitats.                                                                              |
| 5                        | VT           | 1759351053   | 7           | \$50,000                   | \$415,000            | \$465,000         | Restore hydrologic conditions for fish.<br><br>Reconnect fragmented fish habitats.                               |
| 5                        | ME           | 794125232    | 8           | \$50,000                   | \$111,266            | \$161,266         | Restore hydrologic conditions for fish.                                                                          |
| 5                        | WV           | 1558510621   | 9           | \$50,000                   | \$295,000            | \$345,000         | Restore hydrologic conditions for fish.                                                                          |

|   |    |                            |    |          |           |           |                                                                                                                  |
|---|----|----------------------------|----|----------|-----------|-----------|------------------------------------------------------------------------------------------------------------------|
| 5 | MD | 1757979568                 | 10 | \$48,000 | \$90,000  | \$138,000 | Reconnect fragmented fish habitats.                                                                              |
| 5 | ME | 1936202480                 | 10 | \$50,000 | \$180,000 | \$230,000 | Restore hydrologic conditions for fish.<br><br>Reconnect fragmented fish habitats.<br><br>Restore water quality. |
| 5 | NH | 866511396                  | 11 | \$50,000 | \$152,000 | \$202,000 | Restore hydrologic conditions for fish.<br><br>Reconnect fragmented fish habitats.<br><br>Restore water quality. |
| 5 | NH | 866504884                  | 12 | \$30,000 | \$37,500  | \$67,500  | Restore hydrologic conditions for fish.<br><br>Reconnect fragmented fish habitats.                               |
| 5 | CT | 1762059315                 | 13 | \$27,030 | \$56,380  | \$83,410  | Reconnect fragmented fish habitats.                                                                              |
| 5 | NY | 1790801198                 | 14 | \$37,000 | \$56,890  | \$93,890  | Restore water quality.                                                                                           |
| 5 | NY | 1923559761 &<br>1923559984 | 14 | \$49,575 | \$67,069  | \$116,644 | Restore hydrologic conditions for fish.<br><br>Reconnect fragmented fish habitats.<br><br>Restore water quality. |

## 7. Strategic Implementation

*Percentage of projects that include measurable goals and objectives to address:*

- *FHP priority species or priority areas; and/or*
- *Habitat issues for FWS priority species or trust resources*

Choose one, complete the table below, and provide narrative responses describing the measurable goals & objectives (max. 700 characters). Example narrative is provided in Appendix.

- ☐ 95% (Level 3): One hundred percent (100%) of the projects include measurable objectives that address habitat issues related to EBTJV and FWS priority species (Brook Trout).

Complete table adding rows for additional projects as needed.

| <b>Project Title</b>                                                                                                 | <b>Identify FWS Priority Species / Trust Resources</b> | <b>Identify FHP Priority Species / Area</b>            |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------------------------------------------|
| Improving Connectivity for Reintroduced Native Brook Trout in Trail Fork of Big Creek, Cocke County, TN (1411067964) | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 2.2160024E7 |
| Alarka Headwaters Habitat Connectivity & Sedimentation Reduction Project Alarka Creek, Swain County, NC (1991688723) | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 1.9735333E7 |
| Culvert Removal and Stream Restoration, Henderson Brook, Brownville, ME (1587568420)                                 | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 1721323.0   |
| Culvert Removal, In-stream Restoration, and Angler Access Trail on Little Low Place Hollow, WV                       | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 8422544.0   |
| Cady Brook Culvert Replacement, Cady Brook, Hartland, VT (2003710183)                                                | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 9327362.0   |
| Clay Hill Brook Culvert Replacement, Clay Hill Brook, Nulhegan Watershed, Brighton, VT (1758654724)                  | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 4592877.0   |
| Cross Brothers Dam Removal, VT (1759351053)                                                                          | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 4577914.0   |
| Restoration of Riverine Process and Habitat Suitability, Narraguagus River, Beddington, ME (794125232)               | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 2677024.0   |
| Building Habitat Resiliency Within the Wolf Creek Watershed, WV (1558510621)                                         | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 3774655     |
| Culvert Replacement, Blue Lick Run Tributary, Avilton, MD (1757979568)                                               | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 1.436409E7  |
| Culvert Replacement, Unnamed Tributary to Olney Brook, Dixmont, ME (1936202480)                                      | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 1737780.0   |
| Childs Brook Stream Crossing Restoration Project, NH (866511396)                                                     | Brook Trout                                            | Brook Trout / Wild Trout Patch Feature ID# 4594401.0   |



|                                                                                                          |             |                                                        |
|----------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|
| Lone Pine II Brook Culvert Replacement, Design and Permitting, Androscoggin River, Errol, NH (866504884) | Brook Trout | Brook Trout / Wild Trout Patch Feature ID# 1.9334565E7 |
| Culvert Retrofit for Aquatic Passage Restoration, Kirby Brook, Washington, CT (1762059315)               | Brook Trout | Brook Trout / Wild Trout Patch Feature ID# 7713746.0   |
| Lower Wells Brook Stream Restoration Dover Plains, NY (1790801198)                                       | Brook Trout | Brook Trout / Wild Trout Patch Feature ID# 7713688.0   |
| Fish Passage Improvement, Onondaga Creek, Onondaga, NY (1923559761 & 1923559984)                         | Brook Trout | Brook Trout / Wild Trout Patch Feature ID# NA          |

Enter narrative responses below for each project (max. 700 characters/project)

### Measurable Goals & Objectives

#### Improving Connectivity for Reintroduced Native Brook Trout in Trail Fork of Big Creek, Cocke County, TN (1411067964)

This project has two primary project objectives: 1. To restore a self-sustaining population native Brook Trout population in a 2.5-mile section of Trail Fork above a natural barrier blocking the upstream migration of non-native Rainbow Trout and 2. To remove a double culvert road/stream crossing that blocks the upstream passage of native Brook Trout and replace it with a natural bottom, bankfull spanning structure that allows natural passage of fish, woody debris and sediment. Along with this replacement, stream simulation will be used to rehabilitate affected areas upstream and downstream of the current crossing.

#### Alarka Headwaters Habitat Connectivity & Sedimentation Reduction Project Alarka Creek, Swain County, NC (1991688723)

Objective 1: Perform watershed survey for entirety of Alarka Creek, which will provide baseline data for use in post-project monitoring and evaluation; Objective 2: Obtain design and stream simulation for a bottomless arch structure that will replace a culvert serving as an AOP barrier; Objective 3: Remove the culvert and install the bottomless arch; Objective 4: Revegetate the road/stream crossing site with native vegetation; and, Objective 5: Evaluate fish movement through the new AOP structure and reduction of sediment inputs from graveled road elevation changes and modifications to road drainage features.

#### Culvert Removal and Stream Restoration, Henderson Brook, Brownville, ME (1587568420)

Objective 1: Remove the existing perched culvert on the Henderson Brook where it passes under the Katahdin Iron Works road at the Appalachian National Scenic Trail crossing in Bowdoin College West Grant Township, Maine, and replace with a 50 ft clear span bridge; Objective 2: Restore approximately 100 feet of streambed substrate and stabilize streambanks to reestablish natural stream hydrology and flow, reduce erosion and stream sedimentation, and provide in-stream applications for fish passage; and, Objective 3: Install interpretive materials at the A.T./Gulf Hagas parking kiosk to educate and inform visitors of the importance of the Henderson Brook restoration project and cold-water habitat refugia.

#### Culvert Removal, In-stream Restoration, and Angler Access Trail on Little Low Place Hollow, WV

The objectives of this project are to reconnect over 3.8 miles of headwater habitat; improve public access to over 2 miles of high-quality brook trout angling; to restore 0.7 miles of instream habitat; and, to study the biological, physical and chemical responses to these restoration techniques.

Cady Brook Culvert Replacement, Cady Brook, Hartland, VT (2003710183)

The project objectives are a) to remove a culvert that serves as a fish passage barrier and replace it with 21' bridge that provides a restored natural channel and full fish passage at the site; and, b) to remove accumulated sediment upstream of existing road/stream crossing and restore the instream habitat.

Clay Hill Brook Culvert Replacement, Clay Hill Brook, Nulhegan Watershed, Brighton, VT (1758654724)

The objective of this project is to remove a metal pipe that serves as a fish passage barrier and replace it with a natural-bottom aluminum arch culver, which restores full aquatic organism passage, increases the hydraulic capacity of the road/stream crossing, and reconnects Brook Trout to 3 miles of upstream coldwater habitat.

Cross Brothers Dam Removal, VT (1759351053)

The project objectives are 1) To remove the Cross Brothers Dam and return the river to free-flowing conditions; 2) Restore aquatic organism passage to 24 miles of river upstream; 3) Manage impounded sediment, thus protecting existing highway bridge abutments immediately upstream as well as needed streambank stabilization; 4) Facilitate public access to water-based recreation; 5) Educate the public regarding the benefits of dam removal for fish passage; and, 6) Improve existing Wood Turtle habitat by supporting natural channel evolution.

Restoration of Riverine Process and Habitat Suitability, Narraguagus River, Beddington, ME (794125232)

This project has two overarching objectives: 1. Increase in-stream habitat complexity and suitability in high priority Brook Trout and Atlantic Salmon habitat; and, 2. Increase the resiliency of Brook Trout and salmon populations. In order to accomplish these overarching objectives this project will:

- Decrease substrate embeddedness by mobilizing the riverbed and increasing the sorting of mobilized sediments;
- Increase the number and depth of pools;
- Increase groundwater/surface water interactions; and,
- Increase retention of allochthonous organic material that the aquatic food web relies on.

Building Habitat Resiliency Within the Wolf Creek Watershed, WV (1558510621)

The project objectives are: a. To install instream and riparian habitat enhancements for Brook Trout and other aquatic life in over 5000 feet of the Wolf Creek mainstem (reach 2); b. To complete a construction-ready design for a post-project major channel restoration project on an additional 5000 feet of Wolf Creek mainstem (reach 1); and, c. To complete a watershed-level assessment of threats to Brook Trout habitat and opportunities for threat reduction and mitigation for the entire 7,000-acre Wolf Creek watershed.

Culvert Replacement, Blue Lick Run Tributary, Avilton, MD (1757979568)

The project's objectives are to replace two side by side culverts with a fish friendly crossing. The new open bottom structure will facilitate aquatic organism passage and reopen approximately 1.85 miles of upstream habitat for Brook Trout. The new bridge, spanning 1.2 times bankfull width, will also serve to a) increase habitat quality by reducing erosion and restoring natural stream process; b) maintain public access; and c) provide a demonstration site where willing partners, land owners and County Departments of Public Works can see firsthand how fish passage and flood resiliency can be achieved in concert.

Culvert Replacement, Unnamed Tributary to Olney Brook, Dixmont, ME (1936202480)

The Project objectives are: 1) To restore stream connectivity that allows free passage of aquatic organisms during all flows; 2) To restore natural channel morphology and bottom substrate to improve stream habitat quality; and, 3) to enhance recreational Brook Trout fishing opportunities.

Childs Brook Stream Crossing Restoration Project, NH (866511396)

The objective of this project is to remove a culvert that serves as a fish passage barrier and replace it with a three-sided box bridge, which exceeds the current NH Stream Crossing Guidelines, and restore the existing stream channel widths to 1.2 BFW or greater than 17-feet.

Lone Pine II Brook Culvert Replacement, Design and Permitting, Androscoggin River, Errol, NH (866504884)

This project's objective is to remove an undersized culvert that blocks fish passage and replace it with a bridge at a downstream site that's more geomorphically compatible, which re-opens access to 3.0 miles of pristine Brook Trout spawning habitat and thermal refugia.

Culvert Retrofit for Aquatic Passage Restoration, Kirby Brook, Washington, CT (1762059315)

The project's objective is to modify the Kirby Brook culvert by installing rock steps downstream of the site to back up water through the structure, thereby increasing the depth of water through the structure and eliminating the outlet drop and fully restoring passage for fish and other aquatic organisms to 1.8 miles of stream.

Lower Wells Brook Stream Restoration Dover Plains, NY (1790801198)

The project's objective is to modify an unstable reach of the lower Wells Brook through the placement of instream structures (root wads and rock vanes) that will provide shaded, high-quality, cold-water fish habitat.

Fish Passage Improvement, Onondaga Creek, Onondaga, NY (1923559761 & 1923559984)

The objectives of this project are to: (1) stabilize 700 linear feet of stream bank with rip rap and in-stream natural features; (2) remove approximately 50 cubic yards of in-stream gravel above baseflow conditions in the centerline of the channel; (3) improve fish passage at one culvert; and, (4) reduce sediment deposition along a 0.25-mile segment of stream.

## 8. Conservation Actions and Project Outcomes

*Percentage of proposed projects with specific conservation actions that will produce desired conservation outcomes and achieve project goals and objectives?*

Choose one and provide narrative responses below.

- ☐ 100% (Level 3): One hundred percent (100%) of the proposed projects have specific conservation actions that will produce the desired conservation outcomes and achieve the project goals.

Narrative responses (max. 700 characters/project)

Improving Connectivity for Reintroduced Native Brook Trout in Trail Fork of Big Creek, Cocke County, TN (1411067964)

A unique genotype of native Brook Trout found only in the French Broad watershed and will serve as source populations for reestablishing Brook Trout in a reach directly upstream of a 5-m waterfall that serves as a barrier to non-native species below, creating an ideal location for a native Brook Trout reintroduction. Concomitant with the native Brook Trout reintroduction, road/stream crossing structure (a double culvert) will be replaced with a suitable structure that is designed using stream simulation through the affected stream reach and allows full aquatic organism passage.

Alarka Headwaters Habitat Connectivity & Sedimentation Reduction Project Alarka Creek, Swain County, NC (1991688723)

Anthropogenic barrier surveys will be performed using the barrier survey protocol developed by the Southeast Aquatic Resources Partnership while natural barrier surveys will be performed using Trout Unlimited's Waterfall Barrier Survey. Existing presence-absence trout survey data collected by NC Wildlife Resources Commission throughout the Alarka watershed will be compiled and studied by partners. The design of the road/stream crossing structure (bottomless arch culvert) will meet USDA Forest Service stream simulation design standards (or equivalent). USDA Forest Service personnel will oversee the installation of the bottomless arch culvert structure and modifications to the graveled road approaches leading to the stream crossing.

Culvert Removal and Stream Restoration, Henderson Brook, Brownville, ME (1587568420)

Once the culvert is removed and the historic stream channel is exposed, any necessary restoration work required to return the channel to a pre-culvert condition, will be undertaken as work simultaneously begins on stream bank stabilization with native material. Following bank stabilization, the steel superstructure will be installed. The project will conform to the Department of Environmental Protection Standards Performance for Excavations for Clay, Topsoil or Silt; and all soil erosion and sediment control measures will be constructed and maintained in accordance with the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices. The 50ft clear-span bridge is rated for 100-year storms.

Culvert Removal, In-stream Restoration, and Angler Access Trail on Little Low Place Hollow, WV

By removing the undersized culvert, natural hydrology will be restored, and Brook Trout will have renewed access to high-quality pool and thermal refugia. The decommissioning of an old logging road that will return the floodplain to a natural state and reduce stream bank erosion. Large wood and rock structures will be added to the stream segment to create high-quality pool-run habitat. Public access will be improved with the construction of a low impact parking area and 0.7 miles of single tread foot path. Educational signage will be incorporated into the project to show the importance of watershed restoration and significance native wild Brook Trout.

Cady Brook Culvert Replacement, Cady Brook, Hartland, VT (2003710183)

The project entails the installation of a bridge that significantly over spans the channel (160% of bankfull width) such that the channel itself and associated fish passage and sediment transport processes are restored. The new structure will significantly increase the flood resiliency of the road and crossing. The project will open 14.5 miles total and 2.5 miles of upstream cold water habitat to wild Brook Trout and other aquatic organisms.

Clay Hill Brook Culvert Replacement, Clay Hill Brook, Nulhegan Watershed, Brighton, VT (1758654724)

Trout Unlimited (TU) will use the Vermont Stream Crossing standards and USFS Stream Simulation methods to design and construct a road/stream crossing structure that will provide full aquatic organism passage to Brook Trout and other aquatic and semi-aquatic organisms in the system. Currently, the proposed design is for an aluminum arch with a natural bottom – which will ensure aquatic passage through all hydrologic conditions as well as provide the most cost-effective design option. In the year after the project is completed, TU will provide two follow-up site visits to ensure structure suitability to the location and geomorphic stability.

Cross Brothers Dam Removal, VT (1759351053)

The deteriorating dam structure will be removed gradually to provide access to impounded sediment. Excess sediment and invasive plants will be managed for safe storage and/or safe disposal offsite. A new channel and a series of floodplain benches will be created as needed from on-site materials, and the site will be seeded and planted with native vegetation.

Restoration of Riverine Process and Habitat Suitability, Narraguagus River, Beddington, ME (794125232)

This project adds wood and boulder complexity structures to a 0.4-mile reach of the mainstem Narraguagus River and constructs off channel habitat features. Restoration structures will be designed using a combination of high-resolution orthophotos, total station surveys, LiDAR, and hydrologic modeling. Cold water refugia and areas of colder groundwater input have been identified previously so habitat restoration actions will target the availability of colder water as one of the design criteria. Large wood and boulder in-stream structures will be designed to withstand 100-year recurrence floods and spring ice flows. These structures will create a diverse flow

pattern through the reach, creating numerous erosional and depositional areas in and around the structures.

#### Building Habitat Resiliency Within the Wolf Creek Watershed, WV (1558510621)

Instream habitat restoration consists of placing nonmobile, large woody material and stone in a 5,000-foot reach of the Wolf Creek mainstem. These materials will be placed in a manner that will enhance habitat complexity for Brook Trout, with special emphasis on increasing inner berm sinuosity and channel complexity to provide refugia during high-stress, low-flow conditions. Enhancement of riparian habitat entails plantings of fast-growing, non-invasive tree species interplanted with slower-growing, longer-lived species tree species. Planting material selection and methods will enhance stream shading, streambank stability, and, ultimately, natural recruitment of large woody material to increase instream habitat complexity.

#### Culvert Replacement, Blue Lick Run Tributary, Avilton, MD (1757979568)

The project will utilize USDA Forest Service stream simulation design methods to appropriately size a replacement crossing and approximate reference reach conditions underneath the structure. Trout Unlimited will work with engineering and design staff at the US Fish and Wildlife Service and Maryland DNR to ensure the replacement structure meets the specifications of a stream simulation design, adequately addressing a) fish passage and b) channel stability.

#### Culvert Replacement, Unnamed Tributary to Olney Brook, Dixmont, ME (1936202480)

The project replaces an existing 42-inch corrugated metal pipe culvert with a bottomless, 10-foot clear span that complies with a 1.2 times bank-full width standard. A site assessment and crossing design were completed using the USDA Forest Service Stream Simulation methodology and incorporated Stream Smart practices. The new road/stream crossing (a metal arch culvert on precast concrete footings) meet state and federal requirements and accommodate 50- and 100-year flood events.

#### Childs Brook Stream Crossing Restoration Project, NH (866511396)

The project team, including Trout Unlimited on-staff engineers, will work closely with the town, state and project partners to assure all construction activities and materials being used are appropriately sized and installed to withstand the 100-yr storm water flows. All large wood and root wads, used for stream bank stability as well as instream habitat, will be evaluated with abutting landowners so as not to impact any existing, or future, function that they may have on their properties. All construction activities will take place during summer low flow summer months. Additionally, all instream flow will be diverted around the construction site to reduce sedimentation as well as protect all aquatic life.



Lone Pine II Brook Culvert Replacement, Design and Permitting, Androscoggin River, Errol, NH (866504884)

This project removes an undersized culvert that blocks fish and a new bridge will be installed downstream of the current road/stream crossing, where it is more geomorphically compatible for the stream and better suited for the installation of a bridge.

Culvert Retrofit for Aquatic Passage Restoration, Kirby Brook, Washington, CT (1762059315)

For this project, step pools will be installed in the section of stream just downstream of the road/stream crossing structure, in a way that replicates the pattern of pools in an upstream representative reach. The stream will be rebuilt through the structure, with a focus on replicating the size and distribution of natural substrate, including grade controls as well as mobile substrate that is replenished via natural stream processes. It's expected these modifications will increase the flood resiliency of the structure in the face of extreme precipitation events and high flows. The reduction in downstream scour means the stream will be better connected to the floodplain, and the structure will be protected from undermining.

Lower Wells Brook Stream Restoration Dover Plains, NY (1790801198)

The project restores approximately 1200' of degraded streambank along the Wells Brook in Dover Plains, NY by placing instream structures (root wads and rock vanes) in strategic locations to provide shaded, high-quality, cold-water fish habitat.

Fish Passage Improvement, Onondaga Creek, Onondaga, NY (1923559761 & 1923559984)

Rocks and boulders will be added to the downstream side of the culvert so that the maximum drop at the outlet is less than 0.5 ft. Existing pool habitat downstream of the culvert will be maintained to provide habitat diversity and refuge for fish under low-flow conditions. Project work also includes removing a center sediment bar and reusing the excavated gravel, cobble, and boulders to create a bankfull bench on both stream banks and redirect flow to the centerline of the channel. Toe wood will be installed in both streambanks to stabilize banks and help redirect flow. At the most upstream and downstream sections of the project area, a rock grade control structure will be installed.

Supplemental Guidance for Selected Performance Criterion

**1. Benchmarks for the Habitat Assessment criterion performance levels and evaluating FHP achievement of Basic FHP Requirements (Appendix 2, Section 2, Criterion 1 in the approved methodology)**

To achieve Performance Level 1 (PL1), an FHP must:

- Coordinate and compile scientific assessment(s) information on priority fish habitats within the FHP's boundaries. Note: FHPs can use an existing assessment(s) performed by others (e.g., NFHP National Habitat Assessment, universities, Recovery Teams, or LCCs) as a starting point or undertake their own assessment(s).

To achieve Performance Level 2 (PL2), FHP must:

- Meet the requirements of PL1.
- Complete FHP specific plan to fill data gaps and to refine and complete fish habitat assessments that are necessary to strategically identify and prioritize fish habitat conservation projects in FHP boundaries.
- Prioritize information gaps and approach to fill science and data gaps necessary to refine, complete, and update habitat condition assessments that are necessary to strategically identify and prioritize fish habitat conservation projects in FHP boundaries.
- Identify how habitat assessments projects will be solicited and selected within FHP priorities.
- Incorporate existing assessments of habitat conditions and threats as needed into the FHP strategic plan.

To achieve Performance Level 3 (PL3), FHP must:

- Meet the requirements of PL2.
- Information gaps in scientific information and knowledge have been filled in order to strategically identify and prioritize fish habitat conservation projects in FHP boundaries.
- Proactively share scientific information and knowledge from assessments in a compatible format with the National Science and Data Team for integration into the national assessment and other national needs.
- Incorporate new data on threats, including climate change, into the habitat assessment and project priorities.

**2. Additional instruction for determining project completion (found in Appendix 2, Section 2, Criterion 4 of the approved methodology)**

As noted previously, this criterion only considers NFHAP funding used for fish habitat conservation projects. Do not include funding used for operations in the project list.

On-the-Ground Aquatic Habitat Restoration and Protection Projects

- A project is complete when fully constructed or implemented consistent with the project design and performance measures (i.e., number of stream miles enhanced or restored) are reported in FIS-Accomplishments.

- Basic implementation monitoring (if specified in the original project proposal) is also completed; however, longer term, 1-2 year monitoring, and evaluation (if specified in original project proposal) need not be completed to consider the project complete.

Education and Outreach Projects and Species or Habitat Assessment Projects

- A project is complete when the specified product/deliverable (i.e., a brochure, informational sign, video, assessment report, GIS database, etc.) is produced and received consistent with that which was described in the original project proposal and performance measures are reported in FIS-Accomplishments.
- If monitoring was specified (typically not for these project types), then basic implementation monitoring (if specified in the original project proposal) is also completed; however, longer term, 1-2 year monitoring, and evaluation (if specified in original project proposal) need not be completed to consider the project complete.

**3. Instruction for calculating Leveraging (found in Appendix 2, Section 2, Criterion 6 of the approved methodology)**

This criterion indicates the extent to which an FHP has leveraged FWS NFHAP project funds over the previous three fiscal years. The intent is to measure actions by FHPs to secure additional partner funds to supplement projects that receive NFHAP funding. Leveraging is measured as a ratio of the total FWS NFHAP project funds (this includes stable operational support, only to the extent that it was used to fund fish habitat conservation projects, as opposed to operations, performance-based funds, and indirect NFHAP technical project support an FHP received) to the total non-FWS cash or in-kind contributions the FHP secured to supplement the NFHAP project funds it received over the previous three fiscal years. (Note: Fiscal year refers to federal fiscal year, which begins October 1 and ends September 30, annually).

Leveraged funds and in-kind contributions for projects that receive FWS NFHAP project funds includes, but is not limited to, the following types of monetary and in-kind contributions:

- Monetary contributions for FHP coordination and staff positions that directly support projects receiving FWS NFHAP project funds
- Grants
- Private foundation funds
- Documented donations; and in-kind materials and services
- Funds where FWS funds are co-mingled with other non-Service funding sources (e.g. National Fish and Wildlife Foundation)
- Non-appropriated funds managed by the FWS (e.g. Coastal Impact Assistance Program, National Coastal Wetland Conservation Grant program)

Leveraging cannot include:

- FWS appropriated funding and their associated matching funds or in-kind services (e.g. Service funds and partner contributions associated with the National Fish Passage, Coastal, and Partners for Fish and Wildlife programs, LCCs, etc.).
- Any funds raised by the FHP for general operations.
- Any funds raised by the FHP used for projects not also funded by FWS NFHAP project funds.

#### **4. Brief project summary for each prioritized project (examples included below)**

In Section 3, FHPs must present the suite of ranked projects proposed for FWS NFHAP project funding in the current fiscal year and describe how these projects demonstrate strategic use of NFHAP project funds and will achieve desired conservation outcomes. Example narrative is provided below for criteria 7 and 8.

Criterion 7 - Measurable Goals & Objectives (Max. 700 characters): This project replaces one barrier to fish passage and opens 2.8 miles of upstream habitat to juvenile Coho and Chinook salmon. The crossing has been identified as a partial barrier to juvenile salmon by the State. An estimated 8-10 foot embedded culvert will replace the existing culvert. The FHP ranked this culvert in the top 16 culverts to be replaced for fish barrier issues. The project partner and FHP members, the City of Caribou Creek and local Soil District, have expressed the need to construct this project and has funding to support the project. This project addresses Objective 4 in the FHP strategic plan. It targets interjurisdictional fish, an FWS Trust Species, and a species priority for the FHP. It is being implemented in the Anchor River watershed - a priority watershed for the FHP.

Criterion 8 - Conservation Actions & Project Outcomes (Max. 700 characters): Barrier removal will make 2.8 miles of upstream habitat accessible for chinook and coho salmon. The project will be designed using stream simulation standards/techniques, proven techniques to accommodate fish and other aquatic species. The project partner has an established fish passage program and has considerable capacity to implement the project and achieve project goals. The state fish and game agency will evaluate juvenile use of the reopened habitat pursuant to the state's fish passage monitoring plan.